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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,130	08/22/2005	Jens Muller	GRUNP45	9557
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ASHEVILLE, NC 28801				
EXAMINER				
WU, IVES J				
ART UNIT		PAPER NUMBER		
1797				
MAIL DATE		DELIVERY MODE		
07/02/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/520,130

**Applicant(s)**

MULLER ET AL.

**Examiner**

IVES WU

**Art Unit**

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-8, 13, 16, 17 and 20 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 9-12, 14, 15, 18 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 02/12/2008;12/31/2004
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

#### *Claim Rejections - 35 USC § 102*

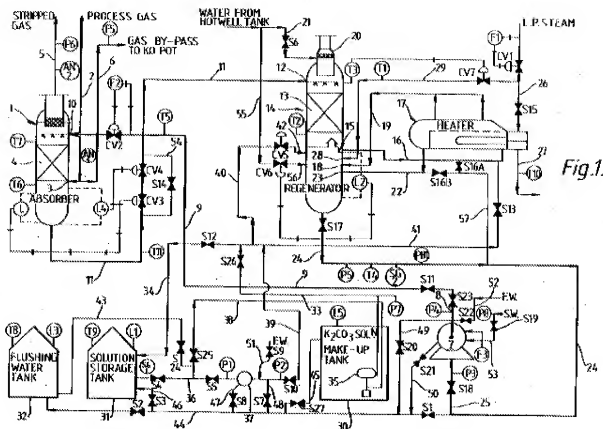
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

- (1). **Claims 1, 5-8, 17** are rejected under 35 U.S.C. 102(b) as being anticipated by Adams et al (US04491566).

As to a lower section with fluid feeding device and a liquid discharging device; an upper section with a fluid feeding device and a gas discharging device, a contact device which is provided such that gas rising from the lower section into the upper section is contacted with liquid which sinks from the upper section into the lower section in a fluid separating device in **independent claim 1**, Adams et al (US04491566) disclose automatic CO<sub>2</sub> removal system and operation (Title). As illustrated in the Figure 1 below, which contains a CO<sub>2</sub> absorber 1 and regenerator column, a section below the contact packing 13 – lower section, CO<sub>2</sub>, water vapor line 18 - fluid feeding device, the regenerated potassium carbonate solution collecting at bottom of column from which it passes through a pipe 24 – liquid discharging device. A section above the contact packing 4 – upper section, liquid inlet line 11 – a fluid feeding device, CO<sub>2</sub> leaves at top of the column – a gas discharging device, the contact packing 13 would read on the limitations of instant claim (Col. 4, line 28-54).



As to a measuring device for determining the amount of liquid in the lower section and/or for determining alternations of the amount of liquid in fluid separating device in **independent claim 1** at least one liquid component in **claim 5**, As shown in the figure above, the Lever sensor L2 measuring the level of the liquid at bottom of the regenerator column which is potassium carbonate solution (Col. 5, line 56-62).

As to a liquid feeding device ending in the lower section in **claims 6 and 17**, Adams et al (US04491566) disclose the solution which is heated in the reboiler 17 to be returned through pipe 22 to the regenerator column 14 at position 23 (Col. 4, line 47-49).

As to upper section comprising means for condensing at least a part of gaseous components of the supplied fluid and/or evaporating at least a part of liquid components of the supplied fluid in **claim 7**, Adams et al (US04491566) disclose demister in top of column 20, which reads on the limitation of instant claim.

As to upper section comprising means for avoiding a discharge of liquid through the gas discharging device of the upper section in **claim 8**, Adams et al (US04491566) disclose spray and demister in the upper section, which would read on the limitation of instant claim.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

(2). **Claims 4, 13, 16, 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams et al (US04491566), evidenced by Warshaw (US03565575).

As to contact device comprising at least one bottom opening and at least one overflow pipe in **claim 4**, Adams et al (US04491566) disclose the contact device made of stainless steel (Col. 5, line 56-59). Adams et al **do not teach** the contact device to be at least one bottom opening and at least one overflow pipe as claimed. However, it is well known in the art that a sieve plate is also used for gas-liquid contact device, which include the features as claimed. As evidenced by Warshaw (US03565575) that in other instances, section may consist of other gas-liquid contact means such as bubble cap plates or sieve trays (Col. 2, line 53-55).

As to limitation of **claim 13**, the disclosure of Adams et al is incorporated herein by reference, the most subject matter as currently claimed, has been recited in applicants' claim 5, and has been discussed therein.

As to limitation of **claim 16**, the disclosure of Adams et al is incorporated herein by reference, the most subject matter as currently claimed, has been recited in applicants' claim 6, and has been discussed therein.

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As to limitation of **claim 20**, the disclosure of Adams et al is incorporated herein by reference, the most subject matter as currently claimed, has been recited in applicants' claim 7, and has been discussed therein.

*Allowable Subject Matter*

(3). **Claims 2-3, 9-12, 14-15, 18-19** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IVES WU whose telephone number is (571)272-4245. The examiner can normally be reached on 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner: Ives Wu

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Date: June 28, 2008

/Duane S. Smith/

Supervisory Patent Examiner, Art Unit 1797  
6-30-08